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6 LONE STAR SILICON INNOVATIONS LLC

7  
8 **UNITED STATES DISTRICT COURT**  
**NORTHERN DISTRICT OF CALIFORNIA**  
9 **SAN FRANCISCO DIVISION**

10  
11 LONE STAR SILICON INNOVATIONS LLC,

12 Plaintiff,

13 v.

14 STMICROELECTRONICS, INC., AND  
15 STMICROELECTRONICS N.V.

16 Defendants.  
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Case No. 3:17-cv-07206

**COMPLAINT FOR PATENT INFRINGEMENT**

**DEMAND FOR JURY TRIAL**

1 Plaintiff, Lone Star Silicon Innovations LLC (“Lone Star”), complains against Defendants  
2 STMicroelectronics N.V. and STMicroelectronics, Inc. (individually or collectively “STMicro” or  
3 “Defendants”) as follows:

4 **NATURE OF ACTION**

5 1. This is an action for patent infringement of United States Patent Nos. 5,912,188;  
6 6,153,933; and 6,388,330 (collectively, the “Patents in Suit”) under the Patent Laws of the United States,  
7 35 U.S.C. § 1, *et seq.* through STMicro’s importation, offer for sale, and sale of semiconductor devices.

8 **THE PARTIES**

9 2. Plaintiff Lone Star is a corporation organized and existing under the laws of the State of  
10 Texas with its principal place of business at 8105 Razor Blvd., Suite 210, Plano, TX 75024. Lone Star is  
11 in the business of licensing patented technology. Lone Star is the assignee of the Patents in Suit.

12 3. Upon information and belief, Defendant STMicroelectronics N.V. (hereinafter “STMicro  
13 N.V.”) is a corporation organized under the laws of The Netherlands, with its principal place of business  
14 at WTC Schiphol Airport, Schiphol Boulevard 265, 1118 BH Schiphol, The Netherlands. Defendant  
15 STMicro N.V. has a headquarters and operational offices located at 39 Chemin du Champ des Filles, 1228  
16 Plan-Les-Ouates, Geneva, Switzerland. Defendant STMicro N.V. conducts business and is doing business  
17 in California and in this District and elsewhere in the United States, including, without limitation, using,  
18 promoting, offering to sell, importing, and/or selling integrated circuit devices that embody and/or are  
19 made using the patented technology, and enabling end-user purchasers to use such devices in this District.  
20 STMicro N.V.’s agent for service of process in the United States is Corporation Service Company (CSC),  
21 80 State Street, Albany, New York, 12207.

22 4. Defendant STMicroelectronics, Inc. (hereinafter “STMicro Delaware”) is a corporation  
23 incorporated under the laws of Delaware with its Americas Region headquarters at 750 Canyon Drive,  
24 Suite 300, Coppel, TX 75019. STMicro Delaware also has places of business at 2755 Great America  
25 Way, 3<sup>rd</sup> Floor, Santa Clara, CA 95054 and 25215 Augustine Drive, Santa Clara, CA 95054. STMicro  
26 Delaware’s agent for service of process in California is CT Corporation System, 818 W. 7<sup>th</sup> Street, Suite  
27 930, Los Angeles, CA 90017. Defendant STMicro Delaware conducts business in California and in this  
28 District and elsewhere in the United States, including, without limitation, using, promoting, offering to

1 sell, importing and/or selling semiconductor devices and/or devices that incorporate such devices that  
2 embody the patented technology, and enabling end-user purchasers to use such devices in this District.

3 **JURISDICTION AND VENUE**

4 5. This action arises under the Patent Laws of the United States, Title 35 of the United States  
5 Code. This Court has subject matter jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 and  
6 1338(a).

7 6. On information and belief, Defendants are subject to this Court's specific and general  
8 personal jurisdiction pursuant to due process and/or the California Long Arm Statute, due at least to their  
9 substantial business conducted in this forum, directly and/or through intermediaries, including (i) having  
10 solicited business in the State of California, transacted business within the State of California and  
11 attempted to derive financial benefit from residents of the State of California, including benefits directly  
12 related to the instant patent infringement causes of action set forth herein; (ii) having placed their products  
13 and services into the stream of commerce throughout the United States and having been actively engaged  
14 in transacting business in California and in this District; and (iii) either alone or in conjunction with others,  
15 having committed acts of infringement within California and in this District. On information and belief,  
16 Defendants, directly and/or through intermediaries, have advertised (including through websites), offered  
17 to sell, sold and/or distributed infringing products, and/or have induced the sale and use of infringing  
18 products in the United States and in California. Defendants have, directly or through their distribution  
19 network, purposefully and voluntarily placed such products in the stream of commerce knowing and  
20 expecting them to be purchased and used by consumers in California and in this District. Defendants have  
21 either committed direct infringement in California or committed indirect infringement based on acts of  
22 direct infringement in California and from their locations in Santa Clara, CA. Further, on information and  
23 belief, Defendants are subject to the Court's general jurisdiction, including from regularly doing or  
24 soliciting business, engaging in other persistent courses of conduct, and/or deriving substantial revenue  
25 from products and services provided to individuals in California and in this District.

26 7. On information and belief, Defendants do one or more of the following with  
27 semiconductor devices and/or devices that incorporate such devices that that they manufacture: (a) import  
28 these devices into the United States for sale to customers, including customers in California; (b) sell them

1 or offer them for sale in the United States, including to customers in California; and (c) sell them to  
 2 customers who incorporate them into products that such customers import, sell, or offer for sale in the  
 3 United States, including in California.

4 8. Venue is proper in this Court pursuant to 28 U.S.C. §§ 1391 and 1400 because  
 5 Defendants have a regular and established place of business within this District and have committed acts  
 6 of infringement within the District. Defendants maintain and operate at least two facilities within this  
 7 District in Santa Clara. Defendants' acts of infringement within this District include, but are not limited  
 8 to, selling and offering to sell infringing products within the District. Defendants' Santa Clara facilities  
 9 have over 200 employees and host regional sales and technical marketing services for networking  
 10 equipment, TV and monitor products, printers, CMOS devices, bipolar/CMOS/DMOS mixed signal  
 11 devices, hard-disk technology, gaming and other consumer products. (See  
 12 [www.stmicroelectronics.com.cn/content/st\\_com/en/about/careers/st-](http://www.stmicroelectronics.com.cn/content/st_com/en/about/careers/st-locations/americas/united_states/santa_clara.html)  
 13 [locations/americas/united\\_states/santa\\_clara.html](http://www.stmicroelectronics.com.cn/content/st_com/en/about/careers/st-locations/americas/united_states/santa_clara.html)). Without limitation, on information and belief, within  
 14 this District, Defendants, directly and/or through intermediaries, have advertised (including through  
 15 websites), offered to sell, sold and/or distributed infringing products, and/or have induced the sale and use  
 16 of infringing products. In addition, venue is proper in this District for Defendant STMicro N.V. pursuant  
 17 to 28 U.S.C. § 1391(c)(3) because it is not resident in the United States, and therefore may be sued in any  
 18 judicial district.

#### 19 **INTRADISTRICT ASSIGNMENT**

20 9. Pursuant to Civil L.R. 3-5(b) Lone Star notes that there are six cases involving at least  
 21 one patent in common pending in the San Francisco Division before the Honorable William H. Alsup.

#### 22 **THE PATENTS IN SUIT**

23 10. On June 15, 1999, U.S. Patent No. 5,912,188 ("the '188 patent"), entitled "Method Of  
 24 Forming A Contact Hole In An Interlevel Dielectric Layer Using Dual Etch Stops," a copy of which is  
 25 attached hereto as Exhibit A, was duly and legally issued. The '188 patent issued from U.S. patent  
 26 application Serial Number 08/905,686 filed August 4, 1997, and discloses and relates to the design of and  
 27 processes for fabricating semiconductor memory devices. The inventors assigned all right, title, and  
 28 interest in the '188 patent to Advanced Micro Devices, Inc. (hereinafter "AMD"). AMD assigned its entire

1 right, title, and interest in the '188 patent to Lone Star, and Lone Star is the sole owner of all rights, title,  
2 and interest in and to the '188 patent including the right to sue for and collect past, present, and future  
3 damages and to seek and obtain injunctive or any other relief for infringement of the '188 patent.

4 11. On November 28, 2000, U.S. Patent No. 6,153,933 ("the '933 patent"), entitled  
5 "Elimination of Residual Materials in a Multiple-Layer Interconnect Structure," a copy of which is  
6 attached hereto as Exhibit B, was duly and legally issued. The '933 patent issued from U.S. patent  
7 application Serial Number 08/925,821 filed September 5, 1997, and discloses and relates to the design of  
8 and processes for fabricating semiconductor devices. The inventors assigned all right, title, and interest in  
9 the '933 patent to AMD. AMD assigned its entire right, title, and interest in the '933 patent to Lone Star,  
10 and Lone Star is the sole owner of all rights, title, and interest in and to the '933 patent including the right  
11 to sue for and collect past, present, and future damages and to seek and obtain injunctive or any other  
12 relief for infringement of the '933 patent.

13 12. On May 14, 2002, U.S. Patent No. 6,388,330 ("the '330 patent"), entitled "Low  
14 Dielectric Constant Etch Stop Layers In Integrated Circuit Interconnects," a copy of which is attached  
15 hereto as Exhibit C, was duly and legally issued. The '330 patent issued from U.S. patent application  
16 Serial Number 09/776,012 filed February 1, 2001, and discloses and relates to the design of and processes  
17 for fabricating semiconductor devices. The inventors assigned all right, title, and interest in the '330 patent  
18 to AMD. AMD assigned its entire right, title, and interest in the '330 patent to Lone Star, and Lone Star  
19 is the sole owner of all rights, title, and interest in and to the '330 patent including the right to sue for and  
20 collect past, present, and future damages and to seek and obtain injunctive or any other relief for  
21 infringement of the '330 patent.

#### 22 **DEFENDANTS' INFRINGING PRODUCTS AND METHODS**

23 13. Defendants are in the business of manufacturing semiconductor devices. Using their own  
24 processes and techniques, Defendants make, use, sell, offer for sale, and/or import into the United States  
25 semiconductor devices, including discrete and standard commodity components, application specific  
26 integrated circuits ("ASICs"), full custom devices and semi-custom devices and application-specific  
27 standard products ("ASSPs"), CMOS, Bi-CMOS, bipolar and non-volatile memory, fully depleted silicon  
28 on insulator ("FD-SOI"), radio frequency silicon-on-insulator ("RF-SOI"), diffused metal-on-silicon

oxide semiconductor (“DMOS”), and silicon carbide (“SiC”) integrated circuit devices and products incorporating such devices. Defendants’ products are used in a variety of industrial, automotive, and consumer electronics, including mobile phones, IoT devices, power conversion products, metering devices for smart grids, tablets, computers, cameras, set-top boxes, global positioning receivers, data loggers, sports accessories, and networking devices. Defendants also provide a FD-SOI Technology Platform to support standard cells, memories, IO (input/output) libraries, clock generators, and specific IPs, which are used as building blocks in different chip designs. Defendants’ sales in the U.S. and North America are made through Defendant STMicro Delaware.

14. Despite not having a license to the ‘188 and ‘933 patents, Defendants have used the semiconductor fabrication methods claimed therein in making semiconductor devices and have used, sold, offered for sale, and imported in the United States semiconductor devices manufactured using such claimed methods. Despite not having a license to the ‘330 patents, Defendants’ semiconductor devices adopt the designs claimed by those patents.

#### **FIRST CAUSE OF ACTION – INFRINGEMENT OF THE ‘188 PATENT**

15. Plaintiff hereby repeats and re-alleges the allegations contained in paragraphs 1 to 14, as if fully set forth herein.

16. Defendants directly and/or through their subsidiaries, affiliates, agents, and/or business partners, have in the past and continue to directly infringe the ‘188 patent pursuant to 35 U.S.C. § 271(g) by importing, using, selling, or offering to sell semiconductor devices in the United States made using the methods claimed in the ‘188 patent, including at least claims 3, 11-13, and 19. On information and belief, semiconductor devices manufactured by Defendants and/or other related entities and/or business partner foundries, are made using a process that practices claims 3, 11-13, and 19 including the steps of: (a) providing a semiconductor substrate; (b) forming a gate over the substrate; (c) forming a source/drain region in the substrate; (d) providing a source/drain contact electrically coupled to the source/drain region; (e) forming an interlevel dielectric layer that includes first, second and third dielectric layers over the source/drain contact; (f) forming an etch mask over the interlevel dielectric layer; (g) applying a first etch which is highly selective of the first dielectric layer with respect to the second dielectric layer through an opening in the etch mask using the second dielectric layer as an etch stop, to form a first hole in the first

1 dielectric layer that extends to the second dielectric layer without extending to the third dielectric layer;  
2 (h) applying a second etch which is highly selective of the second dielectric layer with respect to the third  
3 dielectric layer through the opening in the etch mask using the third dielectric layer as an etch stop, to  
4 form a second hole in the second dielectric layer that extends to the third dielectric layer without extending  
5 to the source/drain contact; and (i) applying a third etch which is highly selective of the third dielectric  
6 layer with respect to the source/drain contact through the opening in the etch mask, to form a third hole in  
7 the third dielectric layer that extends to the source/drain contact, such that the first, second and third holes  
8 in combination provide a contact hole in the interlevel dielectric layer.

9       17. Defendants directly and/or through their subsidiaries, affiliates, agents, and/or business  
10 partners, have also in the past and continue to directly infringe the '188 patent, including at least claims  
11 3, 11-13, and 19, pursuant to 35 U.S.C. § 271(g) by importing, using, selling, or offering to sell  
12 semiconductor devices in the United States made using the methods claimed in the '188 patent. The  
13 semiconductor devices manufactured by Defendants and/or other entities owned and controlled by  
14 Defendants or by third-party partner foundries under contract with Defendants, are made using a process  
15 that practices the claims of the '188 patent. Defendants directly infringe when they import, use, sell, or  
16 offer for sale in the United States semiconductor devices made using the claimed methods.

17       18. Defendants have been and are engaged in one or more of these direct infringing activities  
18 related to their semiconductor devices, including at least their 5869BA – 4Mp, 2.0µm Pixel Pitch Back  
19 Illuminated CMOS Image Sensor, and any other semiconductor devices made using a substantially similar  
20 process and including transistors having a contact hole extending through first, second, and third dielectric  
21 layers to a source/drain contact formed using a process involving dual etch stops in according with the  
22 methods of claims 3, 11-13, and 19 of the '188 patent (“‘188 Accused Products”).

23       19. Defendants, directly and/or through their subsidiaries, affiliates, agents, and/or business  
24 partners, have been and are now indirectly infringing the '188 patent, including at least claims 3, 11-13,  
25 and 19, pursuant to 35 U.S.C. § 271(b) by actively inducing acts of direct infringement performed by  
26 others. Defendants have actual notice of the '188 patent and the infringement alleged herein on or about  
27 November 14, 2016, which was the date that Lone Star's counsel sent a letter to Defendants, attention Raj  
28 Krishnan, providing notice of Defendants' infringement of the '188 patent. In addition, upon information



1 and belief, Defendants have numerous lawyers and other active agents of Defendants and of their owned  
2 and controlled subsidiaries who regularly review patents and published patent applications relevant to  
3 technology in the fields of the Patents in Suit, specifically including patents directed to semiconductor  
4 devices issued to competitors such as AMD, the original assignee of the '188 patent. Upon information  
5 and belief, Defendants are assignees of 1,862 patents, including at least 15 patents prosecuted in the  
6 USPTO in the same classifications as the '188 patent, providing Defendants intimate knowledge of the art  
7 in fields relevant to this civil action. The timing, circumstances and extent of Defendants obtaining actual  
8 knowledge of the '188 patent prior to the commencement of this lawsuit will be confirmed during  
9 discovery.

10         20.       Upon gaining knowledge of the '188 patent, it was, or became, apparent to Defendants  
11 that the manufacture, sale, importation, offer for sale, and use of their '188 Accused Products result in  
12 infringement of the '188 patent. Upon information and belief, Defendants have continued and will  
13 continue to engage in activities constituting inducement of infringement, notwithstanding their  
14 knowledge, or willful blindness thereto, that the activities they induce result in infringement of the '188  
15 patent.

16         21.       The '188 Accused Products are intended for integration into products known to be sold  
17 widely in the United States. Defendants make semiconductor devices using methods claimed in the '188  
18 patent, which devices infringe when they are imported into, or sold, used, or offered for sale in, the United  
19 States. Defendants indirectly infringe by inducing customers (such as makers of mobile devices, cameras,  
20 and other devices) to import products that integrate semiconductor devices made using the methods  
21 claimed in the '188 patent, or to sell or use such products, or offer them for sale, in the United States.

22         22.       Defendants encourage customers, resellers, OEMs, or others to import into the United  
23 States and sell and use in the United States the '188 Accused Products made using the methods claimed  
24 in the '188 patent with knowledge and the specific intent to cause the acts of direct infringement performed  
25 by these third parties. On information and belief, after Defendants obtained knowledge of the '188 patent,  
26 the '188 Accused Products have been and will continue to be imported into the United States and sold in  
27 large volumes by themselves and by others, such as customers, distributors, and resellers. Defendants are  
28 aware that the '188 Accused Products are always made using the same fabrication methods under



1 Defendants' direction and control such that Defendants' customers will infringe one or more claims of the  
2 '188 patent by incorporating such semiconductor devices in other products, and that subsequent  
3 importation, sale, and use of such products in the United States would be a direct infringement of the '188  
4 patent. Therefore, Defendants are aware that their customers will infringe the '188 patent by importing,  
5 selling, and using the products supplied by Defendants.

6 23. Defendants directly benefit from and actively and knowingly encourage customers',  
7 resellers', and users' importation of these products into the United States and sale and use within the  
8 United States. Defendants actively encourage customers and downstream users, OEMs, and resellers to  
9 import, use, and sell in the United States the '188 Accused Products that they manufacture and supply,  
10 including through advertising, marketing, and sales activities directed at United States sales. On  
11 information and belief, Defendants are aware of the size and importance of the United States market for  
12 customers of Defendants' products, and also distribute or supply these products intended for importation,  
13 use, and sale in the United States. Defendants routinely market their infringing semiconductor products to  
14 third parties for inclusion in products that are sold to customers in the United States, as well as directly to  
15 end-user customers. For example, Defendants have publicly stated that their semiconductor devices are  
16 primarily targeted for use in industrial, automotive, and consumer electronics, including mobile phones,  
17 tablets, computers, cameras, set-top boxes, global positioning receivers, data loggers, sports accessories,  
18 networking devices, IoT devices, power conversion devices, and metering devices for smart grids. Further,  
19 Defendants have publicly stated that their CMOS image sensor products are primarily targeted for imaging  
20 applications in the automotive, security, gaming, medical, and high-end traditional camera markets, of  
21 whose products are widely sold and used in the United States. Defendants have numerous direct sales,  
22 distributors, and reseller outlets for these products in the United States. Defendants' marketing efforts  
23 show that they have specifically intended to and have induced direct infringement in the United States.

24 24. Defendants also provide OEMs, manufacturers, importers, resellers, customers, and end  
25 users instructions, user guides, and technical specifications on how to incorporate the '188 Accused  
26 Products into electronics products that are made, used, sold, offered for sale in, and/or imported into the  
27 United States. When OEMs, manufacturers, importers, resellers, customers, and end users follow such  
28 instructions, user guides, and technical specifications and embed the products in end products and make,

1 use, offer to sell, sell, or import them into the United States, they directly infringe one or more claims of  
2 the '188 patent. Defendants know that by providing such instructions, user guides, and technical  
3 specifications, OEMs, manufacturers, importers, resellers, customers, and end users follow them, and  
4 therefore directly infringe one or more claims of the '188 patent. Defendants thus know that their actions  
5 actively induce infringement.

6 25. Defendants have engaged and continue to engage in additional activities to specifically  
7 target the United States market for the '188 Accused Products and actively induce OEMs, manufacturers,  
8 importers, resellers, customers, and end users to directly infringe one or more claims of the '188 patent in  
9 the United States. For example, Defendants have showcased their CMOS image sensor technologies at  
10 various industry events and through written materials distributed in the United States, in an effort to  
11 encourage various OEMs, manufacturers, importers, resellers, customers, and end users to include the  
12 infringing technology in their computers, mobile devices, cameras and other products. These events are  
13 attended by the direct infringers mentioned above and generally by companies that make, use, offer to  
14 sell, sell, or import in the United States products that use semiconductor devices such as those made by  
15 Defendants.

16 26. Defendants derive significant revenue by selling their semiconductor products to third  
17 parties who directly infringe the '188 patent in the United States.

18 27. Defendants' extensive sales and marketing efforts, sales volume, and partnerships all  
19 evidence their intent to induce companies to infringe one or more claims of the '188 patent by, using,  
20 offering to sell, selling, or importing products that incorporate the '188 Accused Products in the United  
21 States. Defendants have had specific intent to induce infringement or have been willfully blind to the  
22 direct infringement they are inducing.

23 28. Defendants' direct and indirect infringement of the '188 patent has injured Lone Star,  
24 and Lone Star is entitled to recover damages adequate to compensate for such infringement pursuant to  
25 35 U.S.C. § 284. Unless they cease their infringing activities, Defendants will continue to injure Lone Star  
26 by infringing the '188 patent.

27 29. On information and belief, Defendants acted egregiously and with willful misconduct in  
28 that their actions constituted direct or indirect infringement of a valid patent, and this was either known

1 or so obvious that Defendants should have known about it. Defendants continue to infringe the '188 patent  
2 by using, selling, offering for sale, and importing in the United States the '188 Accused Products and to  
3 induce the direct infringement of others performing these acts, or they have acted at least in reckless  
4 disregard of Lone Star's patent rights. On information and belief, Defendants will continue their  
5 infringement notwithstanding actual knowledge of the '188 patent and without a good faith basis to believe  
6 that their activities do not infringe any valid claim of the '188 patent. All infringement of the '188 patent  
7 following Defendants' knowledge of the '188 patent is willful and Lone Star is entitled to treble damages  
8 and attorneys' fees and costs incurred in this action under 35 U.S.C. §§ 284 and 285.

9 **SECOND CAUSE OF ACTION – INFRINGEMENT OF THE '933 PATENT**

10 30. Plaintiff hereby repeats and re-alleges the allegations contained in paragraphs 1 to 14, as  
11 if fully set forth herein.

12 31. Defendants, directly and/or through their subsidiaries, affiliates, agents, and/or business  
13 partners, have in the past and continue to directly infringe the '933 patent pursuant to 35 U.S.C. § 271(g)  
14 by importing, using, selling, or offering to sell semiconductor devices in the United States made using the  
15 methods claimed in the '933 patent, including at least claims 5-12. On information and belief,  
16 semiconductor devices manufactured by Defendants and/or other related entities and/or business partner  
17 foundries, are made using a process that practices claims 5-12 including the steps of: (a) forming a first  
18 layer interconnect having a first dielectric layer through which a first layer conductor extends; (b) forming  
19 a second layer interconnect on the first layer interconnect, the second layer interconnect having a second  
20 layer dielectric through which at least one second layer conductor extends, by forming the second layer  
21 dielectric to a first thickness and substantially planarizing the second layer dielectric to reduce the first  
22 thickness to a second thickness prior to patterning the second layer dielectric; (c) patterning the second  
23 layer dielectric to form an etched opening; and (d) filling the etched opening with a conductive material  
24 to form the second layer conductor.

25 32. Defendants directly and/or through their subsidiaries, affiliates, agents, and/or business  
26 partners, have also in the past and continue to directly infringe the '933 patent, including at least claims  
27 5-12, pursuant to 35 U.S.C. § 271(g) by importing, using, selling, or offering to sell semiconductor devices  
28 in the United States made using the methods claimed in the '933 patent. The semiconductor devices

1 manufactured by Defendants and/or other entities owned and controlled by Defendants or by third-party  
2 partner foundries under contract with Defendants, are made using a process that practices the claims of  
3 the '933 patent. Defendants directly infringe when they import, use, sell, or offer for sale in the United  
4 States semiconductor devices made using the claimed methods.

5 33. Defendants have been and are engaged in one or more of these direct infringing activities  
6 related to their semiconductor devices, including at least their CMOSIS X1000 CMOS Image Sensor, and  
7 any other semiconductor devices having first and second interconnect layers designed in accordance with  
8 claims 5-12 of '933 patent and having a substantially similar design ("the '933 Accused Products").

9 34. Defendants, directly and/or through their subsidiaries, affiliates, agents, and/or business  
10 partners, have been and are now indirectly infringing the '933 patent, including at least claims 5-12,  
11 pursuant to 35 U.S.C. § 271(b) by actively inducing acts of direct infringement performed by others.  
12 Defendants had actual notice of the '933 patent and the infringement alleged herein on or about November  
13 14, 2016, which was the date that Lone Star's counsel sent a letter to Defendants, attention Raj Krishnan,  
14 providing notice of Defendants' infringement of the '933 patent. In addition, upon information and belief,  
15 Defendants have numerous lawyers and other active agents of Defendants and of their owned and  
16 controlled subsidiaries who regularly review patents and published patent applications relevant to  
17 technology in the fields of the Patents in Suit, specifically including patents directed to semiconductor  
18 devices issued to competitors such as AMD, the original assignee of the '933 patent. Upon information  
19 and belief, Defendants are assignees of 1,862 patents, including at least 23 patents prosecuted in the  
20 USPTO in the same classifications as the '933 patent, providing Defendants intimate knowledge of the art  
21 in fields relevant to this civil action. The timing, circumstances, and extent of Defendants obtaining actual  
22 knowledge of the '933 patent prior to the commencement of this lawsuit will be confirmed during  
23 discovery.

24 35. Upon gaining knowledge of the '933 patent, it was, or became, apparent to Defendants  
25 that the manufacture, sale, importing, offer for sale, and use of their '933 Accused Products result in  
26 infringement of the '933 patent. Upon information and belief, Defendants have continued and will  
27 continue to engage in activities constituting inducement of infringement, notwithstanding their  
28

1 knowledge, or willful blindness thereto, that the activities they induce result in infringement of the '933  
2 patent under 35 U.S.C. § 271(b).

3 36. The '933 Accused Products are intended for integration into products known to be sold  
4 widely in the United States. Defendants make semiconductor devices that embody the inventions claimed  
5 in the '933 patent, which devices infringe when they are imported into, or sold, used, or offered for sale  
6 in, the United States. Defendants indirectly infringe by inducing customers (such as makers of mobile  
7 devices, cameras, and other devices) to import products that integrate semiconductor devices embodying  
8 inventions claimed in the '933 patent, or to sell or use such products, or offer them for sale, in the United  
9 States.

10 37. Defendants encourage customers, resellers, OEMs, or others to import into the United  
11 States and sell and use in the United States the '933 Accused Products embodying inventions claimed in  
12 the '933 patent with knowledge and the specific intent to cause the acts of direct infringement performed  
13 by these third parties. On information and belief, after Defendants obtained knowledge of the '933 patent,  
14 the '933 Accused Products have been and will continue to be imported into the United States and sold in  
15 large volumes by themselves and by others, such as customers, distributors, and resellers. Defendants are  
16 aware that the '933 Accused Products are integral components of the computer, camera, and mobile  
17 products incorporating them, that the infringing semiconductor devices are built into the computer and  
18 other products, and cannot be removed or disabled by a purchaser of the consumer products containing  
19 the infringing devices, such that Defendants' customers will infringe one or more claims of the '933 patent  
20 by incorporating such semiconductor devices in other products, and that subsequent importation, sale, and  
21 use of such products in the United States would be a direct infringement of the '933 patent. Therefore,  
22 Defendants are aware that their customers will infringe one or more claims of the '933 patent by selling,  
23 offering for sale, importing, and/or using the products as-sold and as-marketed by Defendants.

24 38. Defendants directly benefit from and actively and knowingly encourage customers',  
25 resellers', and users' importation of these products into the United States and sale and use within the  
26 United States. Defendants actively encourage customers and downstream users, OEMs, and resellers to  
27 import, use, and sell in the United States the '933 Accused Products that they manufacture and supply,  
28 including through advertising, marketing, and sales activities directed at United States sales. On

1 information and belief, Defendants are aware of the size and importance of the United States market for  
2 customers of Defendants' products, and also distribute or supply these products intended for importation,  
3 use, and sale in the United States. Defendants routinely market their infringing semiconductor devices to  
4 third parties for inclusion in products that are sold to customers in the United States, as well as directly to  
5 end-user customers. For example, Defendants have publicly stated that their semiconductor devices are  
6 primarily targeted for use in industrial, automotive, and consumer electronics, including mobile phones,  
7 tablets, computers, cameras, set-top boxes, global positioning receivers, data loggers, sports accessories,  
8 networking devices, IoT devices, power conversion devices, and metering devices for smart grids. Further,  
9 Defendants have publicly stated that their CMOS image sensor products are primarily targeted for imaging  
10 applications in the automotive, security, gaming, medical, and high-end traditional camera markets, of  
11 whose products are widely sold and used in the United States. Defendants have numerous direct sales,  
12 distributors, and reseller outlets for these products in the United States. Defendants' marketing efforts  
13 show that they have specifically intended to and have induced direct infringement in the United States.

14         39. Defendants also provide OEMs, manufacturers, importers, resellers, customers, and end  
15 users instructions, user guides, and technical specifications on how to incorporate the '933 Accused  
16 Products into electronics products that are made, used, sold, offered for sale in, and/or imported into the  
17 United States. When OEMs, manufacturers, importers, resellers, customers, and end users follow such  
18 instructions, user guides, and technical specifications and embed the products in end products and make,  
19 use, offer to sell, sell, or import them into the United States, they directly infringe one or more claims of  
20 the '933 patent. Defendants know that by providing such instructions, user guides, and technical  
21 specifications, OEMs, manufacturers, importers, resellers, customers, and end users follow them, and  
22 therefore directly infringe one or more claims of the '933 patent. Defendants thus know that their actions  
23 actively induce infringement.

24         40. Defendants have engaged and continue to engage in additional activities to specifically  
25 target the United States market for the '933 Accused Products and actively induce OEMs, manufacturers,  
26 importers, resellers, customers, and end users to directly infringe one or more claims of the '933 patent in  
27 the United States. For example, Defendants have showcased their CMOS image sensor technologies at  
28 various industry events and through written materials distributed in the United States, in an effort to

1 encourage various OEMs, manufacturers, importers, resellers, customers, and end users to include the  
2 infringing technology in their computers, mobile devices, removable storage devices, and other products.  
3 These events are attended by the direct infringers mentioned above and generally by companies that make,  
4 use, offer to sell, sell, or import in the United States products that use semiconductor devices such as those  
5 made by Defendants.

6 41. Defendants derive significant revenue by selling the '933 Accused Products to third  
7 parties who directly infringe the '933 patent in the United States.

8 42. Defendants' extensive sales and marketing efforts, sales volume, and partnerships all  
9 evidence their intent to induce companies to infringe one or more claims of the '933 patent by, using,  
10 offering to sell, selling, or importing products that incorporate the '933 Accused Products in the United  
11 States. Defendants have had specific intent to induce infringement or have been willfully blind to the  
12 direct infringement they are inducing.

13 43. Defendants' direct and indirect infringement of the '933 patent has injured Lone Star,  
14 and Lone Star is entitled to recover damages adequate to compensate for such infringement pursuant to  
15 35 U.S.C. § 284. Unless they cease their infringing activities, Defendants will continue to injure Lone Star  
16 by infringing the '933 patent.

17 44. On information and belief, Defendants acted egregiously and with willful misconduct in  
18 that their actions constituted direct or indirect infringement of a valid patent, and this was either known  
19 or so obvious that Defendants should have known about it. Defendants continue to infringe the '933 patent  
20 by using, selling, offering for sale, and importing in the United States the '933 Accused Products and to  
21 induce the direct infringement of others performing these acts, or they have acted at least in reckless  
22 disregard of Lone Star's patent rights. On information and belief, Defendants will continue their  
23 infringement notwithstanding actual knowledge of the '933 patent and without a good faith basis to believe  
24 that their activities do not infringe any valid claim of the '933 patent. All infringement of the '933 patent  
25 following Defendants' knowledge of the '933 patent is willful and Lone Star is entitled to treble damages  
26 and attorneys' fees and costs incurred in this action under 35 U.S.C. §§ 284 and 285.



**THIRD CAUSE OF ACTION – INFRINGEMENT OF THE ‘330 PATENT**

45. Plaintiff hereby repeats and re-alleges the allegations contained in paragraphs 1 to 14, as if fully set forth herein.

46. Defendants, directly and/or through their subsidiaries, affiliates, agents, and/or business partners, have in the past and continue to directly infringe the ‘330 patent, including at least claims 1, 4, and 5, pursuant to 35 U.S.C. § 271(a) by using, selling, offering to sell, and/or importing semiconductor devices that embody the inventions claimed in the ‘330 patent, within the United States and within this District. In violation of the ‘330 patent, for example, Defendants’ accused semiconductor devices include: (a) a semiconductor substrate having a semiconductor device provided thereon; (b) a first dielectric layer formed over the semiconductor substrate having a first opening; (c) a first conductor core filling the first opening and connected to the semiconductor device; (d) an etch stop layer of silicon nitride formed over the first dielectric layer and the first conductor core, the etch stop layer having a dielectric constant below 5.5; (e) a second dielectric layer formed over the etch stop layer and having a second opening open to the first conductor core; and (f) a second conductor core filling the second opening and connected to the first conductor core.

47. Defendants have been and are engaged in one or more of these direct infringing activities related to their semiconductor devices, including at least their STA8088 Satellite Receiver, and any other semiconductor devices having transistor interconnects designed in accordance with claims 1, 4, and 5 of the ‘330 patent and having a substantially similar design (“the ‘330 Accused Products”).

48. Defendants, directly and/or through their subsidiaries, affiliates, agents, and/or business partners, have been and are now indirectly infringing the ‘330 patent, including at least claims 1, 4, and 5, pursuant to 35 U.S.C. § 271(b) by actively inducing acts of direct infringement performed by others. Defendants had actual notice of the ‘330 patent and the infringement alleged herein on or about November 14, 2016, which was the date that Lone Star’s counsel sent a letter to Defendants, attention Raj Krishnan, providing notice of Defendants’ infringement of the ‘330 patent. In addition, upon information and belief, Defendants have numerous lawyers and other active agents of Defendants and of their owned and controlled subsidiaries who regularly review patents and published patent applications relevant to technology in the fields of the Patents in Suit, specifically including patents directed to semiconductor

1 devices issued to competitors such as AMD, the original assignee of the '330 patent. Upon information  
2 and belief, Defendants are assignees of 1,862 patents, including at least 19 patents prosecuted in the  
3 USPTO in the same classifications as the '330 patent, giving Defendants intimate knowledge of the art in  
4 fields relevant to this civil action. The timing, circumstances and extent of Defendants obtaining actual  
5 knowledge of the '330 patent prior to the commencement of this lawsuit will be confirmed during  
6 discovery.

7         49.       Upon gaining knowledge of the '330 patent, it was, or became, apparent to Defendants  
8 that the manufacture, sale, importing, offer for sale, and use of its '330 Accused Products result in  
9 infringement of the '330 patent. Upon information and belief, Defendants have continued and will  
10 continue to engage in activities constituting inducement of infringement, notwithstanding their  
11 knowledge, or willful blindness thereto, that the activities they induce result in infringement of the '330  
12 patent under 35 U.S.C. § 271(b).

13         50.       The '330 Accused Products are intended for integration into products known to be sold  
14 widely in the United States. Defendants make semiconductor devices that embody the inventions claimed  
15 in the '330 patent, which devices infringe when they are imported into, or sold, used, or offered for sale  
16 in the United States. Defendants indirectly infringe by inducing customers (such as makers of mobile  
17 devices, handheld computers, cameras, data loggers, sports accessories, and other devices) to import  
18 products that integrate semiconductor devices embodying inventions claimed in the '330 patent, or to sell  
19 or use such products, or offer them for sale, in the United States.

20         51.       Defendants encourage customers, resellers, OEMs, or others to import into the United  
21 States and sell and use in the United States the '330 Accused Products embodying inventions claimed in  
22 the '330 patent with knowledge and the specific intent to cause the acts of direct infringement performed  
23 by these third parties. On information and belief, after Defendants obtained knowledge of the '330 patent,  
24 the '330 Accused Products have been and will continue to be imported into the United States and sold in  
25 large volumes by themselves and by others, such as customers, distributors, and resellers. Defendants are  
26 aware that the '330 Accused Products are integral components of the computer and mobile products  
27 incorporating them, that the infringing semiconductor devices are built into the computer and other  
28 products, and cannot be removed or disabled by a purchaser of the consumer products containing the

1 infringing semiconductor devices, such that Defendants' customers will infringe one or more claims of  
2 the '330 patent by incorporating such semiconductor devices in other products, and that subsequent  
3 importation, sale, and use of such products in the United States would be a direct infringement of the '330  
4 patent. Therefore, Defendants are aware that their customers will infringe one or more claims of the '330  
5 patent by selling, offering for sale, importing, and/or using the products as-sold and as-marketed by  
6 Defendants.

7         52. Defendants directly benefit from and actively and knowingly encourage customers',  
8 resellers', and users' importation of these products into the United States and sale and use within the  
9 United States. Defendants actively encourage customers and downstream users, OEMs, and resellers to  
10 import, use, and sell in the United States the '330 Accused Products that they manufacture and supply,  
11 including through advertising, marketing, and sales activities directed at United States sales. On  
12 information and belief, Defendants are aware of the size and importance of the United States market for  
13 customers of Defendants' products, and also distribute or supply these products intended for importation,  
14 use, and sale in the United States. Defendants routinely market their infringing semiconductor devices to  
15 third parties for inclusion in products that are sold to customers in the United States, as well as directly to  
16 end-user customers. For example, Defendants have publicly stated that their semiconductor devices are  
17 primarily targeted for use in industrial, automotive, and consumer electronics, including mobile phones,  
18 tablets, computers, cameras, set-top boxes, global positioning receivers, data loggers, sports accessories,  
19 networking devices, IoT devices, power conversion devices, and metering devices for smart grids. Further,  
20 Defendants have stated that their positioning receiver products are primarily targeted for handheld  
21 computers, cameras, data loggers, sports accessories, and other products, all of which are widely sold and  
22 used in the United States. Defendants have numerous direct sales, distributors, and reseller outlets for  
23 these products in the United States. Defendants' marketing efforts show that they have specifically  
24 intended to and have induced direct infringement in the United States.

25         53. Defendants also provide OEMs, manufacturers, importers, resellers, customers, and end  
26 users instructions, user guides, and technical specifications on how to incorporate the '330 Accused  
27 Products into electronics products that are made, used, sold, offered for sale in, and/or imported into the  
28 United States. When OEMs, manufacturers, importers, resellers, customers, and end users follow such

1 instructions, user guides, and technical specifications and embed the products in end products and make,  
2 use, offer to sell, sell, or import into the United States, they directly infringe one or more claims of the  
3 '330 patent. Defendants know that by providing such instructions, user guides, and technical  
4 specifications, OEMs, manufacturers, importers, resellers, customers, and end users follow them, and  
5 therefore directly infringe one or more claims of the '330 patent. Defendants thus know that their actions  
6 actively induce infringement.

7         54. Defendants have engaged and will continue to engage in additional activities to  
8 specifically target the United States market for the '330 Accused Products and actively induce OEMs,  
9 manufacturers, importers, resellers, customers, and end users to directly infringe one or more claims of  
10 the '330 patent in the United States. For example, Defendants have showcased their positioning receiver  
11 technologies at various industry events and through written materials distributed in the United States, in  
12 an effort to encourage various OEMs, manufacturers, importers, resellers, customers, and end users to  
13 include the infringing technology in their computers, mobile devices, data loggers, sports accessories, and  
14 other products. These events are attended by the direct infringers mentioned above and generally by  
15 companies that make, use, offer to sell, sell, or import in the United States products that use semiconductor  
16 devices such as those made by Defendants.

17         55. Defendants derive significant revenue by selling the '330 Accused Products to third  
18 parties who directly infringe the '330 patent in the United States. Defendants' extensive sales and  
19 marketing efforts, sales volume, and partnerships all evidence their intent to induce companies to infringe  
20 one or more claims of the '330 patent by, using, offering to sell, selling, or importing products that  
21 incorporate the '330 Accused Products, in the United States. Defendants have had specific intent to induce  
22 infringement or have been willfully blind to the direct infringement they are inducing.

23         56. Upon information and belief, Defendants have continued and will continue to engage in  
24 activities constituting contributory infringement of the '330 patent, including at least claims 1, 4, and 5,  
25 pursuant to 35 U.S.C. § 271(c). Defendants contributorily infringe with knowledge that the '330 Accused  
26 Products, or the use thereof, infringe the '330 patent. Defendants knowingly and intentionally contributed  
27 to the direct infringement of the '330 patent by others by supplying these semiconductor devices that  
28 embody a material part of the claimed invention of the '330 patent and that are known by Defendants to

1 be specially made or adapted for use in an infringing manner. For example, and without limitation, the  
 2 ‘330 Accused Products are used in end products, including computers, laptops, tablets, mobile telephones,  
 3 cameras, data loggers, and sports accessories. The ‘330 Accused Products are not staple articles or  
 4 commodities of commerce suitable for non-infringing use and are especially made for or adapted for use  
 5 in infringing the ‘330 patent. There are no substantial uses of the ‘330 Accused Products that do not  
 6 infringe the ‘330 patent. By contributing a material part of the infringing computing products sold, offered  
 7 for sale, imported, and used by its customers, resellers, and users, Defendants have been and are now  
 8 indirectly infringing the ‘330 patent pursuant to 35 U.S.C. § 271(c).

9 57. Defendants’ direct and indirect infringement of the ‘330 patent has injured Lone Star,  
 10 and Lone Star is entitled to recover damages adequate to compensate for such infringement pursuant to  
 11 35 U.S.C. § 284. Unless it ceases its infringing activities, Defendants will continue to injure Lone Star by  
 12 infringing the ‘330 patent.

13 58. On information and belief, Defendants acted egregiously and with willful misconduct in  
 14 that their actions constituted direct or indirect infringement of a valid patent, and this was either known  
 15 or so obvious that Defendants should have known about it. Defendants continue to infringe the ‘330 patent  
 16 by using, selling, offering for sale, and importing in the United States the ‘330 Accused Products and to  
 17 induce the direct infringement of others performing these acts, or they have acted at least in reckless  
 18 disregard of Lone Star’s patent rights. On information and belief, Defendants will continue their  
 19 infringement notwithstanding actual knowledge of the ‘330 patent and without a good faith basis to believe  
 20 that their activities do not infringe any valid claim of the ‘330 patent. All infringement of the ‘330 patent  
 21 following Defendants’ knowledge of the ‘330 patent is willful and Lone Star is entitled to treble damages  
 22 and attorneys’ fees and costs incurred in this action under 35 U.S.C. §§ 284 and 285.

### 23 **PRAYER FOR RELIEF**

24 WHEREFORE, Plaintiffs prays for:

- 25 1. Judgment that the ‘188, ‘933, and ‘330 patents are each valid and enforceable;
- 26 2. Judgment that the ‘188, ‘933, and ‘330 patents are infringed by Defendants;
- 27 3. Judgment that Defendants’ acts of patent infringement relating to the patents are willful;

